Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-30 are pending in the application, with 1, 11 and 21 being the independent claims. Claims 1, 2, 5-12, 15-22, and 25-30 are sought to be amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 102

<u>Claims 1-5, 8, and 9</u>

The Examiner has rejected claims 1-5, 8, and 9 under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent No. 5,968,167 to Whittaker et al. ("Whittaker"). Based on the foregoing amendments and for the reasons set forth below, Applicant respectfully traverses.

Claim 1, as currently amended, recites an apparatus including:

> a processor capable of simultaneous execution of two or more threads of instructions, wherein the processor comprises:
>> at least two resource units, each capable of being assigned to an instruction of each of the threads, wherein each of the resource units implements a portion of instruction types occurring in each of the threads;
>> a priority register to store thread information for the threads, the thread information including a priority code corresponding to the instructions of each thread, at least one of the threads requesting use of one of the resource units for processing a current instruction; and
>> a priority selector coupled to the priority register to generate an assignment signal to assign the resource units to the requesting thread's current instruction according to the priority codes.

Applicant respectfully submits that Whittaker does not teach, at a minimum, "at least two resource units, each capable of being assigned to an instruction of each of the threads, wherein each of the resource units implements a portion of instruction types occurring in each of the threads" as recited in amended claim 1.

Whittaker is directed to a system capable of selecting a data processing thread for execution using a priority selector. *See* Whittaker, col. 8, ll. 18-40. Multiple data processing threads may be selected in a clock cycle, and each selected thread is sent to an available data processing unit. *See* Whittaker, col. 3, ll. 56-65. The data processing units each consist of a "number of processing elements ... under the control of an associated data processing core." *See* Whittaker, col. 4, ll. 25-44. The data processing units in Whittaker each implement a common and complete set of instruction types, and accordingly cannot be said to teach or suggest "implemen[ing] a portion of instruction types occurring in each of the threads."

The Examiner equates the resource units of claim 1 to the instruction buffer and data bank of Whittaker. However, the instruction buffer and data bank of Whittaker also cannot be said to "implement a portion of instruction types" as recited in amended claim 1, as they do not implement instructions at all.

Since Whittaker does not teach or suggest each and every feature of independent claim 1, it cannot anticipate that claim. Accordingly, the Examiner's rejection of claim 1 under 35 U.S.C. §102(e) is traversed and Applicant respectfully requests that the rejection be withdrawn.

Furthermore, dependent claims 2-5, 8, and 9 are also not anticipated by Whittaker for at least the same reasons as independent claim 1 from which they depend and further in view of their own respective features. Accordingly, the Examiner's rejection of claims 2-5, 8, and 9

under 35 U.S.C. §102(e) is also traversed and Applicant respectfully requests that the rejection

be withdrawn.

Claims 11-15, 18, and 19

The Examiner has rejected claims 11-15, 18, and 19 under 35 U.S.C. §102(e) as being

allegedly anticipated by Whittaker. Based on the foregoing amendments and for the reasons set

forth below, Applicant respectfully traverses.

Claim 11, as currently amended, recites a method including the steps of:

executing two or more threads of instructions simultaneously in a processor;
storing thread information for the threads, the thread information including a
priority code corresponding to instructions of each thread, at least one of the
threads requesting use of one of at least two resource units capable of being
assigned to an instruction of each of the threads for processing a current
instruction, wherein each of the resource units implements a portion of
instruction types occurring in each of the threads; and
generating an assignment signal to assign the resource units to the requesting
thread's current instruction according to the priority codes.

The Examiner has rejected claim 11 for similar reasons as claim 1. Claim 11 has been

amended in a similar manner to claim 1, and Applicant therefore traverses the Examiner's

rejection of claim 11 for similar reasons as claim 1.

Since Whittaker does not teach or suggest each and every feature of independent claim

11, it cannot anticipate that claim. Accordingly, the Examiner's rejection of claim 11 under 35

U.S.C. §102(e) is traversed and Applicant respectfully requests that the rejection be withdrawn.

Furthermore, dependent claims 12-15, 18, and 19 are also not anticipated by Whittaker

for at least the same reasons as independent claim 11 from which they depend and further in

view of their own respective features. Accordingly, the Examiner's rejection of claims 12-15,

18, and 19 under 35 U.S.C. §102(e) is also traversed and Applicant respectfully requests that the

rejection be withdrawn.

Claims 21-25, 28, and 29

The Examiner has rejected claims 21-25, 28, and 29 under 35 U.S.C. §102(e) as being allegedly anticipated by Whittaker. Based on the foregoing amendments and for the reasons set forth below, Applicant respectfully traverses.

Claim 21, as amended, recites a processor capable of simultaneous execution of two or more threads of instructions, including:

> at least two resource units to provide resources for use by the threads, each capable of being assigned to an instruction of each of the threads, wherein each of the resource units implements a portion of instruction types occurring in each of the threads;
> a resource prioritizer coupled to each of the resource units to prioritize resource utilization, the resource prioritizer comprising:
> a priority register to store thread information for the threads, the thread information including a priority code corresponding to the instructions of each thread, at least one of the threads requesting use of one of the resource units for processing a current instruction, and
> a priority selector coupled to the priority register to generate an assignment signal to assign the resource units to the requesting thread's current instruction according to the priority codes.

The Examiner has rejected claim 21 for similar reasons as claim 1. Claim 21 has been amended in a similar manner to claim 1, and Applicant therefore traverses the Examiner's rejection of claim 21 for similar reasons as claim 1.

Since Whittaker does not teach or suggest each and every feature of independent claim 21, it cannot anticipate that claim. Accordingly, the Examiner's rejection of claim 21 under 35 U.S.C. §102(e) is traversed and Applicant respectfully requests that the rejection be withdrawn.

Furthermore, dependent claims 22-25, 28, and 29 are also not anticipated by Whittaker for at least the same reasons as independent claim 21 from which they depend and further in view of their own respective features. Accordingly, the Examiner's rejection of claims 22-25,

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28, and 29 under 35 U.S.C. §102(e) is also traversed and Applicant respectfully requests that the rejection be withdrawn.

Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 6, 7, 10, 16, 17, 20, 26, 27 and 30 under 35 U.S.C. §103(a) as being obvious over Whittaker in view of U.S. Patent No. 5,752,031 to Cutler et al. ("Cutler"). Applicant respectfully submits that the Examiner has failed to make a *prima facie* case of obviousness of claims 6, 7, 10, 16, 17, 20, 26, 27, and 30 based on the combination of Whittaker and Cutler. Accordingly, Applicant respectfully traverses.

Claims 6, 7, and 10 depend from claim 1. As previously stated, Whittaker does not teach or suggest each and every feature of independent claim 1. Cutler does not supply the missing teachings. Accordingly, dependent claims 6, 7, and 10 are not rendered obvious by Whittaker and Cutler for at least the same reasons as independent claim 1 from which they depend and further in view of their own respective features. The Examiner's rejection of claims 6, 7, and 10 under 35 U.S.C. §103(a) is traversed and Applicant respectfully requests that the rejection be withdrawn.

Claims 16, 17, and 20 depend from claim 11. As previously stated, Whittaker does not teach or suggest each and every feature of independent claim 11. Cutler does not supply the missing teachings. Accordingly, dependent claims 16, 17, and 20 are not rendered obvious by Whittaker and Cutler for at least the same reasons as independent claim 11 from which they depend and further in view of their own respective features. The Examiner's rejection of claims 16, 17, and 20 under 35 U.S.C. §103(a) is traversed and Applicant respectfully requests that the rejection be withdrawn.

Claims 26, 27, and 30 depend from claim 21. As previously stated, Whittaker does not teach or suggest each and every feature of independent claim 21. Cutler does not supply the missing teachings. Accordingly, dependent claims 26, 27, and 30 are not rendered obvious by Whittaker and Cutler for at least the same reasons as independent claim 21 from which they depend and further in view of their own respective features. The Examiner's rejection of claims 26, 27, and 30 under 35 U.S.C. §103(a) is traversed and Applicant respectfully requests that the rejection be withdrawn.
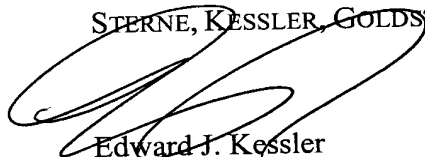
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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